REMARKS

The Present Invention

The present invention is directed to a "humanized" polynucleotide vector, related compositions and kits, a composition for inducing an immune response, a method for expressing at least one target antigen or antigenic epitope thereof, a method for stimulating a specific immune response to at least one target antigen or antigenic epitope, and a method of making a humanized polynucleotide vector.

The Pending Claims

Claims 1-33, 36-44 and 60-110 are currently pending. Claims 1-15, 60-64, 66-77 and 105-109 are directed to the polynucleotide vector, whereas claims 27, 28, 89 and 90 are directed to the related compositions, claims 29-33 and 91-95 are directed to the kits, claims 16-22 and 78-84 are directed to the composition for inducing an immune response, claims 23-26, 65, 85-88 and 110 are directed to the method for expressing at least one target antigen or antigenic epitope thereof, claims 36-43 and 96-103 are directed to the method for stimulating a specific immune response, and claims 44 and 104 are directed to the method of making a humanized polynucleotide vector.

Discussion of the Claim Amendments

The Office Action states that all wherein clauses need to be preceded by a comma. All claims requiring this amendment have been so amended.

Claim 41 has been amended to make it singly dependent.

Claims 64 and 109 have been amended to delete reference to Figure 2 and incorporate reference to the Sequence Identifiers depicted in Figure 2, as amended. This claim amendment was directed by the Office Action, presumably for the purpose of making the claim more clear. No change in the scope of claims 64 and 109 is intended by this amendment.

In view of the foregoing, no new matter has been added by way of the present Amendment.

Discussion of the Claim Objections

A. Wherein phrases

All claims containing "wherein" phrases are amended to the extent necessary to place a comma before the word "wherein" as directed by the Office Action.

B. Claim 28

The Office Action objects to claim 28 for reciting "a composition comprising a composition." Applicants request withdrawal of this objection. Claim 28 as pending is directed to a composition comprising (ii) a pharmaceutically acceptable carrier, and (i) a composition which induces an immune response. Accordingly, the claim is clear and definite.

C. Claims 41-43

The Office Action objects to claims 41-43 for being in improper multiple dependent form. Applicants have amended claim 41 to obviate the objection.

D. Claims 64 and 109

The Office Action objects to claims 64 and 109 for referring to a drawing rather than a Sequence Identifier. Applicants have amended these claims as requested by the Office Action.

Discussion of Section 112 Rejections

The pending claims stand rejected under Section 112 for allegedly failing to enable the skilled artisan to make and use the full scope of the claimed invention without undue experimentation. Applicants request reconsideration for the following reasons.

The Office Action alleges that the specification is not enabling with respect to promoters other than the RANTES promoter, any 3' splice site, and any poly A sequences. With respect to the claims as currently pending, the Office Action fails to meet its burden of showing why it would require undue experimentation to use other promoters, 3' splice sites, and polyA sequences. Accordingly, the rejection is not properly supported and should be withdrawn.

Specifically, the Office Action alleges that enablement of these composition claims must be viewed from the perspective of protective immunotherapy, thereby allegedly raising applicants' burden of providing an enabling disclosure. The claims, however, are to be examined on the basis of their current form. If any enabled use of the claimed invention is disclosed by the specification, or known to the skilled artisan, then an enablement rejection is improper. There is no recitation in the claims that effective immunotherapy is achieved by the claimed compositions, and it would be an error to read the same into the claims. In this regard, the vectors are useful for inducing immune responses in humans. Human immune responses create antibodies, T cells, and other moieties each of which are *per se* useful. Additionally, the vectors are useful in studying human immune reactions to antigens. It is

necessary to distinguish between inventions which have a utility in the research environment, and those for which further research is necessary to establish a utility. Still other uses of the vectors *other than* human immunotherapy are available.

The MPEP section cited in the Office Action, and *In re Vaeck* on which the MPEP relies, do not support the instant rejection. In *In re Vaeck*, the claims recited that the claimed genes were capable of expression in any cyanobacterium. The record in that case supported the allegation that cyanobacterium comprises 150 genera, most of which were poorly understood at the time of that applicant's invention. Accordingly, the Court found that the scope of the claimed invention did not reasonably correlate to the scope of enablement. Here, however, the claimed compositions do not recite the induction of prophylactic human immunotherapy, even if the same is highly desirable. Accordingly, it is error to read that requirement into these claims.

For clarity, applicants do not admit that the claimed compositions cannot be used in human immunotherapy without undue experimentation. Rather, applicants merely point out that there is inadequate basis for the rejection, and the burden remains on the Patent Office to establish a proper prima facie rejection.

For the foregoing reasons, the Enablement rejection should be withdrawn.

No further remarks should be required, but to ensure rapid progression to allowance applicants wish to take this opportunity to make several additional points about the support proffered by the Patent Office in support of the Enablement rejection. It is believed that these remarks could expedite further prosecution, and in the alternative, help place the application in better condition for appeal.

The Office Action focuses on claim 16, which recites that the vector induces an immune response. As noted above, immune responses produce multiple moieties with *per se* utility. Accordingly, claim 16 does not justify the heightened standards of examination employed by the Office.

The Office Action also rejects out-of-hand that vectors other than the one exemplified will work. This rejection is supported only by skepticism and a discussion of the art that does not properly support the rejection.

For example, Moingeon et al. allegedly recites that the discovery of new antigens is difficult, but the claimed invention is not directed to the discovery of new antigens, but rather to compositions useful for presenting antigens.

The Office Action alleges that the art calls for new presentation platforms, but improperly discounts applicants' evidence that it has provided a new and useful antigen presentation platform. Indeed, the Office Action accepts that the exemplified vector is useful

in immunotherapy, but fails to establish why other compositions within the scope of the pending claims would not be expected to be similarly effective.

The Office Action also dismisses the Nelson Declaration because it allegedly fails to specify the route of administration used to provide the mouse short term protective immunity. Again, however, the claimed composition need be enabled only for one use to overcome the enablement rejection. At least for this reason, dismissal of the Nelson Declaration was improper.

The Office Action also alleges that the claimed vector is not as effective in combination with bacterial antigens as with viral antigens. First, even if one or more classes of antigens do not work well, the fact that they work at all is sufficient to overcome an enablement argument unless the standard of review is improperly shifted to protective immunotherapy. Second, even if the claims encompass inoperable embodiments, this is not fatal. The Patent Office bears the burden of demonstrating that the inoperable embodiments could not be separated from the operable embodiments without undue experimentation. Third, and most importantly, if the claimed compositions are enabled for even a single use, then the composition claims of the present application meet the enablement requirement.

The Office Action also continues to reject the claims for an alleged failure to provide adequate guidance on the choice of other vector elements such as promoters and splice sites. This is in error at least because the Office Action does not explain how the rejection can be maintained in view of the Manning Declaration, which the Office is required to consider.

Discussion of the Anticipation Rejection

The Office Action rejects the pending claims over Roop (U.S. Patent No. 6,143,727). Applicants respectfully request reconsideration for the following reasons.

Roop simply does not teach a vector lacking nucleic acid sequences encoding vector-derived polypeptides. The initial burden of showing that Roop anticipates the claimed invention is on the Patent Office. That applicant has not shown where in Roop antibiotic resistance is taught by Roop is irrelevant. Additionally, even if Roop teaches an expression cassette that does not encode a vector-derived polypeptide, that is irrelevant because the claim requires an absence of polypeptides encoded anywhere by the vector. Roop simply fails to teach or reasonably suggest this claim limitation. Accordingly, the anticipation rejection should be withdrawn.

Discussion of the Obviousness Rejections

All pending claims stand rejected over Carrano (U.S. Patent No. 6,197,755), Nelson

(1993), Nelson (1996) and Eastman (U.S. Patent No. 6,103,470), alone or in view of other art cited in the Office Action. Applicants respectfully request reconsideration.

Carrano does not teach a vector lacking vector derived polypeptides. The Office Action alleges that this failing is cured by Eastman, but Eastman fails to cure the failings of Carrano. Eastman merely discloses that the vector should not contain antibiotic resistance genes. The vectors disclosed by Carrano are not designed to lack all vector derived polypeptide sequences, and therefore, are not humanized as required by the instant claims.

Additionally, neither Carrano, nor Eastman teaches a sequence acceptance site having an interrupted palindrome recognition sequence. The references merely seem to teach palindromic restriction sites and multicloning sites (see, e.g., Eastman, col. 7, lines 7-28). The Office Action alleges that the use of an interrupted palindrome recognition sequence is given no patentable weight, but this is improper, as the Office must show that each and every limitation of the claimed invention is met by the prior art.

Applicants are not aware of how any of the other prior art cited in conjunction with the obviousness rejections cure either of these failings of Carrano combined with Eastman. Moreover, applicants wish to point out that in combining multiple references, the Office bears the burden of indicating how the ordinarily skilled artisan would inevitably arrive at the claimed invention upon reading the references *without reference to applicants' own disclosure.*

The Office Action also rejects the pending claims over Roop (U.S. Patent No. 6,143,727) in combination with Danko. Applicants respectfully request reconsideration for the following reasons.

Roop fails to teach a vector lacking nucleic acid sequences encoding vector-derived polypeptides. The initial burden of showing that Roop anticipates the claimed invention is on the Patent Office. Additionally, even if Roop teaches an expression cassette that does not encode a vector-derived polypeptide, that is irrelevant because the claim requires an absence of polypeptides encoded anywhere by the vector. Roop simply fails to teach or reasonably suggest this claim limitation. Applicants are not aware of anything in Danko that cures the failing of Roop to reasonably suggest the claimed invention.

For the foregoing reasons, the obviousness rejection should be withdrawn.

ATCC Deposit

Applicants made deposits under ATCC designations 98400 and 98401. The ATCC is a depository compliant with the Budapest Treaty. Applicants, through their undersigned attorney, hereby state that upon the grant of a patent comprising any of

pending claims 14, 66, or 76, applicants will irrevocably and without restriction release these deposits to the public.

Conclusion

The application is considered to be in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of this Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,

David J. Schodin, Reg. No. 41,294
LEYDIG, VOIT & MAYER, LTD.
Two Prudential Plaza, Suite 4900
180 North Stetson
Chicago, Illinois 60601-6780
(312) 616-5600 (telephone)
(312) 616-5700 (facsimile)

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